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ABSTRACT

The Rural Initiative Program funds projects addressing specific rural education problems. Sample projects, chosen both by matching programs to selection criteria and by competition, include: staff development improvement, tele-teaching, expanded rural course offerings, and school-based entrepreneurship. This paper discusses cost analysis procedures employed by Congress, the Office of Educational Research and Improvement (OERI), and the Regional Educational Labs in conceptualizing, designing, developing, operating and evaluating the program. The paper describes and differentiates analyses involving cost effectiveness, cost benefit, cost utility, and cost feasibility. It examines decision criteria, values that underlie recommendations for action. The decision criteria discussed are: effectiveness, efficiency, adequacy, equity, responsiveness, and appropriateness. At each stage of program development, Congressional conceptualization, OERI program design, Regional Lab program proposal and development, and program operation, different types of cost analysis are applicable. In determining benefits, both the intended and unintended effects of the programs must be carefully documented. An initial list of unintended effects of these programs includes empowerment of rural educators, development of new rural organizations, increased institutional capacity of the Regional Laboratories, development of rural research, and heightened interest in rural education. This paper contains 20 references. (DHP)

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CONSIDERATIONS ABOUT THE COSTS AND BENEFITS OF THE RURAL INITIATIVE PROGRAM OPERATED BY THE REGIONAL EDUCATIONAL LABORATORIES, 1987-1990

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Considerations About the Costs and Benefits of the Rural Initiative Program Operated by the Regional Educational Laboratories Between 1987 and 1990

Introduction and Motivation

This paper is offered as part of a symposium on the costs and benefits of an investment in rural education. The subject of this piece is the Rural Initiative program, the newest federal program designed especially to assist the nation's rural schools. This program, administered by the United States Department of Education through the nine Regional Educational Laboratories, is now in its third year.

The content of this paper is organized under four headings. "Introduction and Motivation" presents the topic of the paper, as well as anecdotal and other evidence of the applicability of cost analysis techniques to education decisionmaking. "Background on Cost Analysis in Current Education Literature" provides the results of an ERIC search on that topic and a synthesis of cost analysis methods presented in two often cited texts. "Background on the Rural Initiative Program" provides an explanation of the congressional authorization and funding of the program, the program solicitation requirements issued subsequently to the Laboratories by the Department of Education, and examples of the unique and common aspects of the program as operated by the individual Laboratories. "Cost Analysis Applied to the Rural Initiative Program" describes what cost analysis has been applied previously to the initiative and what considerations should be kept in mind for future cost analyses that may be applied to the program.

To begin...a digression.

In a recent meeting of a local school board in AEL's Region[1], two cost-related policy issues were discussed. First, discussion focused on an audience member's contention that the board could save $50,000 by moving the date of a special bond issue election from mid-December to the mid-November general election. Though at a previous meeting the board had voted unanimously to establish the December date, one board member sporting a "re-elect me" button volunteered that he was sympathetic to the audience member's contention. Other board members countered that the December date had been selected very deliberately; that experience showed that the bond issue would have a much greater chance of being passed if it were considered apart from the general election. Second, a discussion focused on summer school arrangements including tuition rates for out-of-district, regular in-district, and free-and-reduced-lunch-eligible students. When the "select-me" board member spoke in favor of the arrangements, he was countered immediately by another member who averred that since the state did not reimburse the district for summer school and since the proposed tuition levels left the local district with a $50,000 deficit, she thought tuition should be raised. Further, she said, "select-me's" behavior seemed very illogical. Earlier he was interested in saving $50,000; now, he's trying to give $50,000 away. The debate seemed to be more about politics than cost analysis. And yet, cost

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[1]The Appalachia Educational Laboratory (AEL), Inc., is contracted by the United States Department of Education to operate the Regional Educational Laboratory that serves Region 3: Kentucky, Tennessee, Virginia, and West Virginia.

effectiveness was certainly the basis of the board's original decision to hold the election in December. And a rough cost effectiveness analysis contributed the setting of tuition levels for summer school--a remediation opportunity targeted for the district's at-risk students.

The digression is intended to highlight the growing frequency with which practitioners and lay boards deal with policy issues requiring cost analysis and the complexity of the environment in which these issues are debated. And these examples are about relatively simple problems that cost analysis could be used to address. A much more complex and pervasive problem confronting educators and policymakers in the Appalachian Region that requires the application of cost analysis techniques is school consolidation and school closings.[2]

Economist David Mulkey reminds that the linkage of the local education system with the local economic system is becoming more and more pronounced.[3] This linkage makes it incumbent on those of us in the knowledge, production, and transformation profession to be ready to assist practitioners to understand and apply correctly the techniques of cost analysis.

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[2]See, for example, School Closures and Policy Issues, Richard R. Valencia, October 1984, pages 5-6; Education in a Changing Rural Environment: The Impact of Population and Educational Change on the Demand for and Cost of Public Education in Rural America, B. Deaton and K. McNamara, 1984; "Efficiency and the Characteristics of School Districts: A Study of 178 Kentucky Districts," Craig Howley, 1989, pages 33-43; "Economies of Scale in Schooling," L. Kenny, 1982, pages 1-24; and "Expenditure and Size Efficiencies of Public School Districts," H. Walberg and W. Fowler, 1987, pages 5-13.

[3]See Research Needs in Rural Education: An Economic Perspective, David Mulkey, October 1988, page 10.

This need for technical assistance will increase in the next decade as more and more decisionmaking responsibility and authority are delegated to local school sites and boards. The current revolutionary change in the organization of public education in the Commonwealth of Kentucky is a case in point. There, the legislature has responded to the State Supreme Court's finding that Kentucky's education system is unconstitutional by giving authority and responsibility for the accomplishment of the "Six Goals for the Schools of the Commonwealth" to local school councils composed of the principal, three teachers, and two parents. The councils will determine curriculum; assign staff time; assign students and determine school schedules; allocate school space; plan and resolve school issues; and plan and implement school discipline, classroom management techniques, and extracurricular activities.[4] Clearly, then, the need for technical assistance in decisionmaking strategies, including cost analysis, is apparent and urgent.

Background on Cost Analysis in Current Education Literature

A search of ERIC system entries for 1980-90 using the descriptors cost effectiveness, measures, and measurement techniques yielded 65 entries. Most of the articles were single-topic studies reporting the results of cost analysis of energy-saving programs, vocational education, experiential learning, bus scheduling, student grants, year-round schools, and even online ERIC searches. A few were on new cost analysis measures

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[4]See Elements of the Kentucky School Reform Package for Training Teachers and Administrators, Roger Pankratz, page 2.

or techniques. However, the two documents that seem to provide the best information for this paper are the texts by William N. Dunn (1981) and Henry M. Levin (1983).

Levin refers to his text as a "primer to introduce to the active administrator and evaluator the rationale and method of cost analysis." He defines cost analysis in educational evaluation as "the use of a broad set of techniques for evaluation and decisionmaking, including cost effectiveness, cost benefit, cost utility, and cost feasibility." Next, Levin defines each of the included techniques. Cost effectiveness analysis is evaluating alternatives according to their cost (input) and their effects in producing intended outcomes (output). It is the preferred approach, says the author, for most education-related studies. Cost benefit analysis is evaluating alternatives according to a comparison of both their costs and benefits where each is measured in terms of monetary value. Cost utility analysis is the evaluation of alternatives according to a comparison of their costs and the estimated utility or value of their outcomes. Cost feasibility analysis is the evaluation of alternatives based solely on cost and available funds.[5]

Dunn's text is a comprehensive introduction to public policy analysis. Chapter seven, "Recommending Policy Actions," contains an extensive discussion of "two major approaches to recommendation: cost benefit analysis and cost effectiveness analysis." Dunn's definitions of the two analyses are very similar to Levin's. However, Dunn is less sanguine

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[5]For a complete discussion of these four techniques, see Cost Effectiveness: A Primer, Henry M. Levin, 1983, pages 9-31.

than Levin about the universal applicability of these analyses to considerations of public policy. He prefers to view these two analyses as methods for assessing the adequacy of various alternatives and adequacy as one of six decision criteria, i.e., "stated values that underlie recommendations for action."

The six Dunn decision criteria are: effectiveness, efficiency, adequacy, equity, responsiveness, and appropriateness. An alternative is effective if it results in a valued outcome or objective; efficient if it requires less effort to produce a given level of effectiveness; adequate if at any given level of effectiveness it satisfies the needs, values, and opportunities that gave rise to the problem; equitable if the effects or efforts are fairly or justly distributed; responsive if it satisfies the needs, preferences, or values of particular groups; and appropriate if its objectives are worthy or valuable and if the assumptions underlying the objectives are tenable.

Further, Dunn says, the criterion of adequacy may refer to four types of problems and, concomitantly, four variations of cost analysis: Type I problems have fixed costs and variable effectiveness and require equal cost analysis to ascertain which alternative maximizes the attainment of objectives; Type II problems have fixed effectiveness and variable costs and require equal effectiveness analysis to ascertain which alternative minimizes cost while achieving a fixed level of effectiveness; Type III problems have variable costs and variable effectiveness and require variable cost-variable effectiveness analysis to ascertain which alternative maximizes the ratio of effectiveness to costs; and Type IV problems have fixed costs and fixed effectiveness and

require equal cost-equal effectiveness analysis to ascertain which alternatives, if any, meet a predetermined effectiveness level without exceeding a predetermined cost constraint.[6]

An overview of the Rural Initiative program follows. Then the applicability of Dunn and Levin's texts to the development and evaluation of the program is discussed.

Background on the Rural Initiative Program

In May 1987, the United States Department of Education invited the nine Regional Educational Laboratories to submit proposals to conduct projects that would address specific rural education problems within their respective Regions. This solicitation was authorized in the Education Appropriation Act of 1986 (H.R. 5233, as referenced in H. J. Res. 738; Public Law 99-500 and 99-591, October 30, 1986). Approximately $4 million was appropriated by Congress to fund the initiative in FY 87. A second $4 million appropriation continued the initiative in FY 88. In FY 89, Congress appropriated $5 million for the program.

The Conference Committee Report for H.R. 5233 explained that Rural Initiative funds were..."for the purpose of initiating a new program that will identify and support further development of promising rural small school activities and practices within [the Regional Educational Laboratories'] regions."[7] This initiative was one of many congressional

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[6]For a complete discussion of these ideas, see Public Policy Analysis: An Introduction, William N. Dunn, pages 219-277.

[7]Cited from the appendix to the OERI Rural Initiative Change Order Modification #8, May 13, 1987.

efforts to assist rural communities to address the negative social impact of various economic, social, and political developments that now face them. Some of these developments are changes in the world economy, industrial restructuring in rural regions (especially the extractive industries), outmigration, loss of the family farms, weakening political base, and changes in family patterns.[8]

> Since there are only a few avenues for the Federal Government to become rapidly involved in noncategorical school improvement activities, and since Congress was interested in moving quickly to help rural regions experiencing immediate crises, it was decided to disburse the dollars earmarked for rural school improvement through the nation's nine already existing Regional Educational Laboratories. These nine Labs are strategically located throughout the United States and are funded and monitored by the Office of Educational Research and Improvement (OERI) of the United States Department of Education.[9]

OERI established a set of priorities for the Laboratories to address in their "core" Rural Initiative proposals. Through the core proposals, approximately two-thirds of the FY 87 funds were dispensed in equal shares to the Laboratories. A separate, limited competition among the Laboratories was held to dispense the remaining one-third of the funds. (A similar strategy--core and competitive proposals--was used in the FY 89 Rural Initiative, as well.) The priorities for the core proposal were based on prior OERI-sponsored rural education studies and symposia, a nationwide study by the Labs of the needs of rural schools, and other reports

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[8]For descriptions of these and other developments, see The Changing Context of Education in a Rural Setting, E. Robert Stephens, 1988.

[9]Alan DeYoung's Qualitative Evaluations of Four Iterations of the AEL School-Community Partnership Model (draft), 1990, page 1.

resulting from the collaborative rural education projects carried out by the Laboratories during 1986 and 1987. The list of priorities follows:

1. Providing a full range of course offerings for students in rural, small schools.
2. Strengthening rural students' thinking and reasoning skills.
3. Improving achievement levels of rural poor students.
4. Improving student transition from rural schools to work and postsecondary education.
5. Recruiting and training quality teachers for rural schools.
6. Strengthening partnerships between rural schools and the community.
7. Assisting rural schools to organize for school improvement.

OERI directed the Laboratories to address these priorities through a series of five tasks:

1. Identify, gather, and disseminate information about promising rural practices, resources, organizations, and capacities.
2. Establish or strengthen working relationships with rural copartners.
3. Design and provide services to rural, small schools and to teachers, administrators, and others who work in rural settings.
4. Prepare a status report on the condition of education in rural, small schools within the Region.
5. Evaluate and report quarterly on progress in carrying out the work.

As indicated earlier, there was a limited competition for one-third of the FY 87 funds. The competition among the nine Laboratories was for proposals to address the most critical and persistent problems and needs of a Laboratory's Region that could not be addressed through the core proposal; permit resources to be concentrated on studying an especially promising approach to improving rural education; and to respond to

unique, one-time opportunities that are available due to fortuitous timing, constituent interests, and staff capabilities. Appropriations by Congress in FY 88 and 89 enabled the Labs to continue and expand upon these FY 87 rural initiatives.

The core and the competitive proposals produced both unique and common projects across the nine Laboratories. Among the unique projects, the Southwest Educational Development Laboratory (SEDL) is working to improve staff development practices for rural educators in collaboration with state education agencies, institutions of higher education, and other intermediate units. In 1987-89, SEDL recruited and trained 100 staff development providers, 35 of whom worked with 30 demonstration sites in SEDL's five-state Region. The Far West Laboratory for Educational Research and Development's portfolio is diversified to include a tele-teaching project in Utah's Great Basin, a K-3 literacy project in Arizona, and a project to improve Chapter 1 programs for rural California students. The Mid-Continent Regional Educational Laboratory operates a project designed to increase student access to information about postsecondary education, a project to enable rural schools to collaborate in using the expanded course offerings available through satellite and fiber optics technologies, and a project focusing on school-based entrepreneurship and community history documentation efforts such as those pioneered by Elliot Wigginton. The Appalachia Educational Laboratory is developing and pilot testing at four sites a capacity-building process aimed at improving the quality of information available to rural school officials concerning improvements needed in their schools. The pilot test includes a third-party case study at each of the four sites.

In addition to these unique R & D, technical assistance, and evaluation projects, the Labs worked also on common projects as part of the rural initiative. The common projects are tasks 1, 2, and 4 above: promulgating promising practices that work in the Region's rural schools, strengthening relationships with rural copartners, and collaborating with OERI on the production of a status report on rural education. Each of these efforts was adapted, of course, to the special characteristics and needs of the Laboratory Regions.

As a concluding note to this section, it appears that the Regional Laboratory contractors will have the opportunity to build upon the work of this heretofore incrementally funded Rural Initiative program. The RFP for operating Regional Educational Laboratories during FY 91-95 specifies that the contractors will devote at least 25 percent of their Laboratory resources to assisting in the improvement of rural, small schools.[10]

Cost Analysis Applied to the Rural Initiative Program

The Rural Initiative program is in the second quarter of its third year of incremental funding. This section of the paper discusses cost analysis procedures (as described in Dunn [1981] and Levin [1983]) that Congress, OERI, and the Regional Lab contractors have likely applied either explicitly or implicitly in conceptualizing, designing, developing, operating, and evaluating the program. The paper concludes with a discussion of some types of unanticipated program outcomes that should be investigated, cataloged, and considered in summative cost analyses of the program.

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[10]See Regional Educational Laboratory Request for Proposal, Office of Educational Research and Improvement, April 6, 1990.

When Congress conceptualized the Rural Initiative program, it was dealing with Dunn's Type I problem (fixed cost and variable effectiveness) and probably utilized a variant of Levin's cost feasibility analysis. There was $4 million available to assist rural schools. More than likely, Congress addressed itself to two Type I questions: (1) how can Congress disburse those resources in a timely manner that would produce measurable effects on the nation's 2,750 rural school districts and 2.2 million children[11]; and (2) what priorities should Congress stipulate to assure that significant education problems would be addressed? Answers to these queries were provided in the report language attached to the appropriation bill.

Next, as the agency designated by the Department of Education to administer the program, OERI designed the program and prepared the two solicitations for the Labs. OERI was dealing with Dunn's Type I problem and using a variant of Levin's cost effectiveness analysis. It is likely, then, that the agency grappled with the following kind of Type I question: How can OERI design a program that respects the intent of Congress, as well as the prerogatives of the Laboratories' regional governing boards, while assuring accountability and achieving the greatest effects on rural schools?

In developing programs responsive to the OERI solicitations, board members and staff of the corporations operating the Laboratories were confronted with Dunn's Type I problem for the development of the core

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[11]The data are from the Northwest Regional Educational Laboratory publications cited in The End of the Road: Rural America's Poor Students and Poor Schools, National Rural Small Schools Task Force, 1988.

proposal and with a Type III problem (variable cost-variable effectiveness) for the competitive proposal. Variants of Levin's cost effectiveness analysis were probably used to develop first the core and then the competitive proposals. The key Type I and Type III questions likely addressed by the individual Laboratories were: What basic program design will fulfill OERI requirements and at the same time address significant needs of the rural and small schools in this Region? What does the Lab's experience in the Region suggest would be the preferred program strategies for addressing the needs within the resource constraints of this initiative?

In operating and formatively evaluating the programs for almost two and a half years, the Laboratories have addressed annually Type I and Type III problems as they prepared their continuation proposals. Cost effectiveness analysis was probably used in some form to prepare the proposals. The key Type I question addressed by the Labs was: What program adjustments are necessary in order to improve the effectiveness and efficiency of the program? The key Type III question was: What supplemental activity(ies) in accord with the solicitation, would complement work being carried out under the core project and address needs of rural small schools in the Region?

Finally, in carrying out a summative evaluation of the Rural Initiative program at some future time, the Laboratories and OERI will probably use some variant of cost effectiveness. The problem of evaluating each of the nine Lab's Rural Initiative programs is a Type III problem in each instance. In approaching this summative evaluation task, care should be taken to document both the intended and unintended effects of the program.

Dunn is especially persuasive on this point. Dunn uses a classification system as a net to capture as many benefits as possible. He includes benefits that are internal or external to the given target group or jurisdiction; tangible and intangible; direct and indirect results of the program; net efficiency and redistributed benefits (pages 246-247).

As the third year of the Rural Initiative program proceeds, it is appropriate to begin documenting unanticipated effects of the program so that they can be classified for possible inclusion in future cost effectiveness studies. A beginning list of such effects follows:

- empowerment of rural educators involved in the Laboratories' Rural Initiative programs through recognition among colleagues in their states, through networking with rural educators from other states, and through attendance at special regional meetings;
- development of new rural organizations such as the Coalition of Rural West Virginians (formerly the Special Task Force on Rural School Districts) that produced the report Schools in Crisis: Students at Risk that led to (1) a modification in the state formula for service personnel favorable to rural schools, and (2) a state appropriation of $20,000 for a study of the characteristics of effective rural high schools;
- increased institutional capacity of the Regional Educational Laboratories to help address the regional needs of rural schools through R & D-based initiatives;
- development of a national network of education R & D professionals knowledgable of and interested in the improvement of rural schools;
- strengthening of professional associations for educators interested in rural, small schools such as the National Rural Education Association, the Southern Rural Education Association, the Rural Education Special Interest Group of the American Educational Research Association, and the DC-based Organizations Concerned About Rural Education;
- new publications such as the paper by E. Robert Stephens that received the 1989 National Rural Education Association Research Award (The Changing Context of Education in a Rural Setting) and (Education and Rural Community Development: An Environment for Change) by the members of the AEL Rural, Small Schools Regional Rural Roundtable;

- heightened interest in rural education in the Office of Educational Research and Improvement evidenced by the hiring of a fulltime senior level coordinator for rural education with the concomitant revitalization of the Rural Education Subcommittee of the Federal Interagency Committee on Education;

- increased collaboration between the Regional Laboratory contractors and the ERIC Clearinghouse on Rural Education and Small Schools leading to increased awareness of clearinghouse services and products among rural educators participating in the Rural Initiative program;

- at the national level, too, new rural education organizations are appearing with increasing frequency--the entries in the Directory of Organizations and Programs in Rural Education increased in the last three years by 400 percent, according to its ERIC/CRESS compilers; and

- increased research productivity in rural education as evidenced by a 15-20 percent increase in input to ERIC/CRESS in the last three years, e.g., journal article input was 326 in 1986, 510 in 1989.

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